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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,371	06/28/2001	Michael H. Chu	42390.11203	9546

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EXAMINER	
COUSO, JOSE L	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/896,371	HODGSON ET AL.	
	Examiner	Art Unit	
	Jose L. Couso	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 09 January 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-9, 19-23, 29 and 31 are rejected under 35 U.S.C. 101 because they are drawn to non-statutory subject matter.

The claimed invention is directed to non-statutory subject matter.

The claimed invention is so abstract and sweeping as to cover the method if practiced by a human operator assisted only by pencil and paper. The claims do not include a particular machine or apparatus, and no machine-implemented steps are recited, the steps are capable of performance by the human mind. A method of this sort, traditionally called a "mental process", is not patentable subject matter.

"Phenomena of nature, though just discovered, mental-processes, abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work." (emphasis added). Gottschalk v. Benson, 175 USPQ 673, 675 (USSC 1972). See also, In re Prater and Wei, 159 USPQ 583 (1968), rehearing, 162 USPQ 541 (1969).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Lengyel (U.S. Patent No. 6,573,890).

With regard to claims 1 and 10, Lengyel describes partitioning the matrix into a set of overlapping sub-blocks { m_k, k = 1,...,V } (refer for example to column 10, lines 6-65); weighting each sub-block m_k by a weight matrix w_k to form a weighted sub-block $m_k * w_k$, where w_k has the same dimension as m_k and $*$ denotes element-by-element multiplication, wherein $m_k * w_k$ has a decomposition $m_k * w_k = \sum_{i=1}^{N(k)} \sigma_i(k)\, u_i\, v'(k)$; and representing each weighted sub-block $m_k * w_k$ by a set of scalar weights { $\sigma_i(k)$, i = 1,..., $n(k)$} , a set of vectors { $u_i(k)$, I = 1,..., $n(k)$}, and a set of vectors { $v_i(k)$, I = 1,..., $n(k)$}, where $n(k) \leq N(k)$ (refer for example to column 13, line 40 through column 14, line 5).

As to claims 2 and 11, Lengyel describes wherein the matrix has elements M(i,j), i = 1,..., P; j = 1,..., Q where P and Q are the number of rows and the number of columns, respectively, of the matrix, wherein the weight matrices w_k, k = 1,...,V are such that for any image pixel element M (i,j) the sum of all weight elements in the set of

weight matrices w_k, $k = 1,\ldots,V$ multiplying M (i,j) when weighting each sub-block m_k by w_k is a predetermined value (as discussed in column 10, lines 6-65).

In regard to claims 3 and 12, Lengyel describes wherein the predetermined value is unity (refer for example to column 32, lines 1-65).

With regard to claims 4, 6, 13, 15, 20 and 25, Lengyel describes for each k, the decomposition $m_k * w_k = {}_{i=1}\Sigma^{N(k)}\ \sigma_i(k)\, u_i\, v'(k)$ is the singular value decomposition of the weighted sub-block $m_k * w_k$ (refer for example to column 13, line 40 through column 14, line 5).

As to claims 5, 7, 14, 16, 21 and 26, Lengyel describes wherein for each index k, $n(k)$ is the smallest index i for which $\sigma_{i+j}(k) < C$, where C is a positive constant, the singular values are such that $\sigma_1(k) \geq \sigma_2(k) \geq \ldots \geq \sigma_{N(k)}(k)$, and if there is no such smallest integer, then $n(k) = N(k)$ (refer for example to column 13, line 40 through column 14, line 5).

As to claims 8, 17, 22 and 27, Lengyel describes wherein there is at least one k for which $n(k) < N(k)$ (refer for example to column 32, lines 1-65).

In regard to claims 9, 18, 23 and 28, Lengyel describes wherein $n(k) = \min\{C, N(k)\}$, where C is independent of k (refer for example to column 10, lines 6-65).

With regard to claims 19 and 24, Lengyel describes partitioning the matrix into a set of overlapping sub-blocks $\{ m_k, k = 1,\ldots,V \}$ (refer for example to column 10, lines 6-65); where m_k has a decomposition $m_k = {}_{i=1}\Sigma^{N(k)}\ \sigma_i(k)\, u_i\, v'(k)$; and representing each sub-block m_k by a set of scalar weights $\{ \sigma_i(k), i = 1,\ldots, n(k)\}$, a set of vectors $\{ u_i(k), I$

= 1,..., $n(k)$}, and another set of vectors { v_i (k), I = 1,..., $n(k)$}, where $n(k) \leq N(k)$ (refer for example to column 32, lines 1-65).

In regard to claims 29-30, Lengyel describes receiving families of set comprising: a family of sets of scalar weights {{ σ_i (k), i = 1,..., $n(k)$ } , k = 1,..., V }, a family of sets of vectors {{ u_i (k), I = 1,..., $n(k)$}} , k = 1,..., V }, and a family of sets of vectors {{ v_i (k), I = 1,..., $n(k)$}} , k = 1,..., V }, forming weighting vector outer products and summing to provide $m'_k = {}_{i=1}\Sigma^{n(k)}\ \sigma_i(k)\ u_i\ v'(k)$ (refer for example to column 13, line 40 through column 14, line 5); and overlapping n_k for k = 1,..., V and summing to provide synthesized matrix M' (refer for example to column 10, lines 6-65).

With regard to claims 31-32, describes receiving families of set comprising: a family of sets of scalar weights {{ σ_i (k), i = 1,..., $n(k)$ } , k = 1,..., V }, a family of sets of vectors {{ u_i (k), I = 1,..., $n(k)$}} , k = 1,..., V }, and a family of sets of vectors {{ v_i (k), I = 1,..., $n(k)$}} , k = 1,..., V }, forming weighting vector outer products and summing to provide $m'_k = {}_{i=1}\Sigma^{n(k)}\ \sigma_i(k)\ u_i\ v'(k)$, weighting each m'_k by a matrix w_k to form $m'_k * w_k$ where $*$ denotes element-by-element multiplication (refer for example to column 13, line 40 through column 14, line 5); and overlapping $m_k * w_k$ for k = 1,..., V and summing to provide synthesized matrix M' (refer for example to column 10, lines 6-65).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ormsby et al, Gilge, Zandi et al. and Hale all disclose systems similar to applicant's claimed invention.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose L. Couso whose telephone number is (703) 305-4774. The examiner can normally be reached on Monday through Friday from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PRIMARY EXAMINER

Jlc
June 30, 2004